

**Remarks**

The Applicants have amended the Specification to place it into formal condition for allowance. Entry into the official file is respectfully requested.

The Applicants have amended Claims 1, 16 and 17 to replace “comprising” with --consisting of--. Entry into the official file is respectfully requested.

Claims 11-29 stand rejected under 35 USC §102 as being anticipated by the computer-generated English translation of JP '941. The Applicants note with appreciation the Examiner's detailed comments hypothetically applying JP '941 to those claims. The Applicants respectfully submit, however, that JP '941 is inapplicable to Claims 11-29 under 35 USC §102 for the reasons set forth below.

As noted above, the Applicants have amended Claims 11, 16 and 17 to replace “comprising” with --consisting of--. This is important inasmuch as the rejection acknowledges that JP '941 “additionally contains V.” The Applicants agree. The Applicants' use of “consisting of ” excludes the presence of V and, accordingly, JP '941 is inapplicable to Claims 11-29 under 35 USC §102. Withdrawal of the rejection is respectfully requested.

Claims 1-29 stand rejected under 35 USC §103 over the computer-generated English translation of JP '941. The Applicants respectfully submit, however, that JP '941 fails to provide teachings that would lead one skilled in the art to the subject matter of Claims 11-29. Reasons are set forth below.

The Applicants' Specification in paragraph 14 states that JP '941:

discloses a technique for improving the r value of a dual-phase steel sheet by optimizing the V content in relation to the C content. In this technique, C contained in steel is precipitated as a V-based carbide to minimize the amount of dissolved C before

recrystallization annealing, thereby achieving a high  $r$  value. Then, the steel is heated in the  $\alpha$ - $\gamma$  intercritical region to dissolve the V-based carbide and concentrate C in the  $\gamma$  phase, and then cooled to produce a martensite phase. The addition of V increases the cost because V is expensive, and VC precipitated in the hot-rolled sheet increases deformation resistance in cold rolling. Therefore, for example, in cold rolling with a reduction ratio of 70% as disclosed in an example, a load on a roll is increased to cause the problems with production, such as an increase in the danger of occurrence of a trouble and the possibility of decreasing productivity.

Thus, the Applicants recognized at the time of filing their application the problems involved in the steel sheets disclosed in JP '941. Those problems related to the addition of V as follows:

- (1) the high price of V increases cost, and
- (2) deformation resistance increases during cold rolling, resulting in decreased productivity.

The rejection points to JP '941 in paragraphs [0030] and [0031] that V can be replaced with Ti and Nb. The Applicants respectfully submit that the machine translation is quite crude and does not stand for the proposition that "vanadium can be replaced with niobium and titanium." When paragraphs [0030] and [0031] are taken in their full context, together with the JP '941 tables, it can be seen that JP '941 does not suggest that V can be replaced by Nb and Ti. Instead, it suggests that V can be supplemented with Nb and Ti.

In that regard, JP '941 very clearly teaches that the presence of V provides for a high  $r$  value. Then, later in paragraph [0030], JP '941 states that the presence of V can essentially be supplemented by the presence of Nb and Ti, not replaced by Nb and Ti. Thus, the first equation containing only V and C can be supplemented to include not only V and C, but also Nb and Ti. Thus, the result is that as stated in paragraph [0031], the presence of Nb and Ti along with V "have the same operation as V." In any event, in the closing paragraph [0031], JP '941 teaches,

"However, as the above effect of Nb and Ti is considerably small as compared with that of V, when only Nb and Ti are added to the steel slab without adding V, the deep drawability aiming at the invention cannot be enhanced sufficiently." This means that V should be present.

The examples in JP '941 bear this out. For example, steels F, I, K and O all have relatively high r values such as 1.7, 1.9, 1.9 and 1.8, respectively. However, all of the examples contain V and only a few of the examples contain Ni and/or Ti. Thus, one skilled in the art can readily see that the essence of JP '941 is the inclusion of V, not Ni and/or Ti.

In any event, the presence of Ni and/or Ti is essentially irrelevant as shown by other steels such as steel A and H which have r values of 1.8 and 1.9, respectively. Neither of those steels contains Ni or Ti. Nonetheless, the r values are substantially identical as the examples that contain V, Ni and/or Ti. It can therefore be seen that criticality is associated with the presence of V, not Ni and/or Ti.

Further, the rejection points out that when steel examples F, I, K and O ignore V,  $(Nb/93) / (C/12) = 0.2-0.7$  is satisfied. Nevertheless, V is an indispensable element with JP '941 and therefore, the importance of V cannot be ignored. For example, steel F satisfies the above-mentioned equation when Nb only is included. However, V is included by as much as 0.21%. The form of structure is a ferrite single phase and is not a steel having a ferrite phase and a martensite phase, as in the claimed steel.

Reference to the Applicants' examples shows that, for the most part, the r values are lower even though they are completely satisfactory for the purposes of the Applicants' steel. In that regard, the Applicants note that the average r value ranges between 1.2 and 1.8, with the typical r value being between 1.3 and 1.5. Thus, the Applicants respectfully submit that the r values between the claimed steels and those of JP '941 are significantly different and the

teachings of the need for the presence of V in JP '941 would lead one skilled in the art away from the Applicants' claimed subject matter. Withdrawal of the rejection of JP '941 under 35 USC §103 is also respectfully requested.

In light of the foregoing, the Applicants respectfully submit that the entire Application is now in condition for allowance, which is respectfully requested.

Respectfully submitted,



T. Daniel Christenbury  
Reg. No. 31,750  
Attorney for Applicants

TDC/vp  
(215) 656-3381